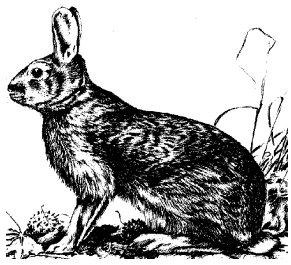
2012
IOWA AUGUST
ROADSIDE SURVEY

Prepared by:

Todd Bogenschutz
Upland Wildlife Research Biologist

Mark McInroy
Upland Wildlife Research Technician

Lile Kruger
Administrative Assistant



Iowa Department of Natural Resources
Chuck Gipp, Director
September 2012

2012 IOWA UPLAND WILDLIFE POPULATIONS

This report is a summary of the 2012 Iowa August roadside survey. The survey is conducted each year by IDNR Enforcement and Wildlife Bureau personnel throughout the state of Iowa during the first half of August. Individuals involved in this survey should be credited for their efforts to collect these data during the early-morning hours. This survey is partially funded by the Pittman-Robertson Act, Federal Aid in Wildlife Restoration Program, Project Number W-115-R.

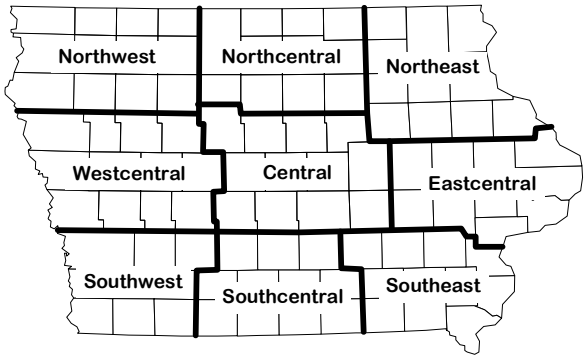


Figure 1. August Roadside Survey Regions

The August roadside survey generates data from approximately 215, 30-mile routes on ring-necked pheasants, bobwhite quail, gray partridge, cottontail rabbits, and white-tailed jackrabbits. Counts conducted on cool mornings when the sun is shining, with heavy dew, and no wind yield the most consistent results. Comparisons between 2011 and 2012 are based on routes that are directly comparable between years (routes with no alterations and routes started with good dew). Long-term trends are based on all routes run (e.g, Table 3).

2011-12 IOWA WEATHER SUMMARY

Two factors determine the abundance and distribution of upland game populations in Iowa - **weather** and **habitat.** Iowa pheasant numbers increase with mild winters and warm, dry springs and decline with snowy winters and cold, wet springs. Iowa experienced 5 consecutive severe winters with 30+ inches of snow from 2006-07 to 2010-11. In the 50 years of standardized roadside counts Iowa has never seen 5 consecutive winters of this severity (Figure 4).

Iowa finally saw a break in this winter weather pattern with only 17" of snowfall during the past winter, or 31% below normal (Table 1). NOAA reported below normal snowfall within every region; NW Iowa reporting snowfall 10% below normal to SC Iowa reporting snowfall 44% below normal. According to NOAA March 2012 was the warmest in state history, while snowfall totals were the 17th lowest in 125 years of state records. The mild winter and early spring warmth should have brought what few female pheasants, quail, partridge, and cottontails Iowa had thru the winter in excellent condition with little overwinter mortality.

Table 1. Iowa 2011-12 weather summary.

	Survey Regions									
Weather Variables	NW	NC	NE	WC	C	EC	SW	SC	SE	STATE
Winter Weather*										
Total Snowfall (inch)	24	19	22	19	15	20	14	12	13	**17.4**
*Departure***	*-2.6*	*-10.3*	*-7.8*	*-8.6*	*-10.7*	*-4.3*	*-7.8*	*-9.5*	*-9.4*	*-7.9*
Spring Weather										
Total Rainfall (inch)	10.1	8.3	7.5	7.6	6.8	6.0	7.1	6.7	7.0	**7.5**
Departure	*4.1*	*1.4*	*0.4*	*0.6*	*-0.5*	*-1.2*	*-0.3*	*-0.9*	*-0.5*	*0.4*
Mean Temperature (F)	58	56	56	59	59	59	61	60	61	**58.6**
Departure	*4.2*	*2.8*	*2.9*	*3.1*	*3.7*	*3.3*	*4.2*	*3.0*	*3.4*	*3.2*

* Winter weather period (1Dec.-31Mar.) and spring period (1April-31May).

** Departures calculated using thirty year NOAA average from 1961-1990.

The spring of 2012 also offered a reprieve from the past 4 years with April and May showing normal rainfall and above normal temperatures (Table 1). According to NOAA the spring of 2012 was the warmest in 140 yrs of records and the driest since 2005. Staff reported much earlier brood sightings indicative of an early hatch, which generally bodes well for increased populations. The combination of below normal snowfall and a normal and warm spring was a welcome relief to Iowa's upland wildlife. The dry conditions of this past winter persisted and turned into severe drought this summer, the worst to hit Iowa since late 1980's. Impacts of the drought to upland wildlife should have been limited to midsummer rabbit broods.

UPLAND HABITAT TRENDS IN IOWA

Figure 2. Trends in Iowa habitat and total habitat loss from 1990 to 2010, data from USDA.

Year	Hay Acres	Small Grains Acres	CRP Acres	Total All Habitat Acres
1990	2,000,000	675,000	1,951,061	4,626,061
1995	1,700,000	260,000	2,199,360	4,159,360
2000	1,700,000	198,000	1,598,662	3,496,662
2005	1,600,000	140,000	1,917,574	3,657,574
2010	1,200,000	80,000	1,672,601	2,952,601
		Total Acres Habitat Lost		1,673,460
		Total Square Miles Habitat Lost		2,615

Past versions of the August Roadside Survey have only included weather trends as they have the most impact on the upland game populations from year to year. Changes in habitat are more gradual and the influence of habitat changes on upland populations are only evident after looking at several years of surveys. Information from USDA shows that between 1990 and 2010 Iowa has lost 2,615 mi^2 of potential pheasant habitat (Figure 2). This habitat was a mix of small grains, hay land, and Conservation Reserve Program (CRP) acres. To put this loss in perspective 2,615 mi^2 is a strip of habitat **9 miles wide** that would stretch from Omaha to Davenport! The CRP has become critical for Iowa pheasant populations with the lost of small grains and hay lands to corn and soybean production. Unfortunately Iowa continues to lose CRP. USDA information shows contracts on 184,290 acres (288 mi^2) of Iowa CRP expire in 2013. It is vital for CRP to remain a strong program in the next Farmbill to retain some of these critical pheasant habitat acres in Iowa.

Figure 3. Young brood of pheasants wondering what to do after CRP field was emergency mowed in early August 2012.

Because of the severe drought experienced across much of the nation this summer USDA has released CRP acres in Iowa for emergency haying and grazing to reduce the droughts impact particularly on livestock producers. Hunters this fall could expect to see some CRP in Iowa hayed or grazed.

SURVEY WEATHER CONDITIONS

The August Roadside Survey yields the most consistent results when surveys are completed on mornings with heavy dew, no wind, and sunny skies. Research at Iowa State University in the 1950's showed the number of pheasants counted on mornings with medium dew averaged 43% less than when the route was run on a

morning with heavy dew. Staff reported only 73% of routes were started with heavy dew in 2012, compared to 85% in 2011. The NW, WC, and SW regions in particular reported only 50-75% of the routes were started under favorable dew conditions. There was a large degree of variability in counts likely caused by the lack of good dew mornings. The 2012 roadside survey likely did not do as good a job surveying populations because of poor dew conditions caused by this year's drought.

RING-NECKED PHEASANT

Statewide: As expected and predicted, based on winter and spring weather conditions, Iowa's pheasant population increased. This year the statewide index is 8 birds/route a 16% increase over the 2011 estimate (Table 2). There was a lot of variability in the counts this year with few statistically significant trends in any survey region, which occurs when dew conditions are not optimal Counts increased in 7 of the 9 survey regions with the SW and WC regions reporting fewer birds seen in 2012 (Table 2). Lower counts in the SW and WC regions are likely related to the poor survey conditions noted above. This increase was expected given the mild winter and good spring weather (Table 1).

Iowa research indicates over winter hen survival, brood survival, and nest success are the major factors influencing annual changes in pheasant numbers. Statewide the total hens counted on routes this year was higher (9%) than last year, a reflection of better overwinter survival (Table 2 – statewide numbers). Statewide data on chicks/brood (measure of chick survival) and age ratio's (chicks per adult hen – measure of overall hen success) showed 13% improvement over 2011 respectively, a reflection of the better spring nesting conditions in 2012 (Table 2).

Based on this year's statewide index of 8 birds/route, Iowa pheasant hunters should harvest approximately 125,000-200,000 roosters this fall (Figure 4). While pheasant counts remain well below what the wildlife bureau and most hunters would like to see in Iowa – rest assured as long as Iowa has well managed CRP habitat the populations will bounce back. Iowa currently has 1.6 M acres of CRP and this level of habitat should support a 600,000-800,000 rooster harvest – with 2-3 more years of good weather. Iowa had low counts in 1984 and 2001 (Table 3, Figure 4) and the population rebounded in 2-3yrs, with mild winters and dry springs. The key was good weather and good habitat, unfortunately Iowa continues to lose CRP habitat, as noted on page 2 of this report. It will be very hard to recover Iowa pheasant numbers if habitat loses of this magnitude continue in Iowa.

Northern Regions: Routes across the northern third of Iowa showed consistent increases in bird numbers from 35-58% in 2012 (Table 2, Figure 6). Looking at data in Table 2, the number of hens generally increased in all 3 regions which is indicative of improved winter survival. Chick survival (chicks/brood) and young per hen (age ratio) were improved or unchanged from last year suggesting improved nesting and chick survival (Table 2). Across the northern third of Iowa the NW and NC regions have some of the better bird densities in the state in 2012. However, numbers in the NE remain the lowest in the state. Parts of NW and NC Iowa should offer good pheasant hunting, particularly around good habitat on public lands (Figure 7). Better counts came from Clay, Dickinson, Hancock, Kossuth, Palo Alto, Osceola, and Winnebago counties.

Central Regions: Counts in the C and EC regions showed stable or increasing trends. Poor dew conditions in the WC region make any interpretation of the counts difficult (Table 2, Figure 6). Chick, brood size, and age ratio data all suggest good nest success and chick recruitment in the C and EC regions in 2012 (Table 2). The Central region also had the second highest average count at 13 birds per route in 2012. Better bird numbers will be found around core public lands and larger private CRP lands with well managed habitat in the C region (Figure 7). Better counts came from Boone, Hamilton, Johnson, Muscatine, Poweshiek, and Webster counties.

Southern Regions: Similar to the central region, counts in the SC and SE regions showed increasing trends. Poor dew conditions during the survey in the SW region make any interpretation of the counts difficult (Table 2, Figure 6). Data on chicks, chicks/brood, and young per hen (age ratio) in the SC and SE regions

suggest nesting and chick recruitment were improved over 2011 and responsible for the increased counts in the regions.

While this region of Iowa has an abundance of habitat in the form of CRP, most is located on private land and it has been enrolled in the program for 20+yrs with little active management reducing its value for pheasants and quail. However, lack of management it only part of the problem in this region. Nesting season weather patterns also have shifted in the region. The table at the right shows the amount of April/May rainfall has increased significantly during the last 2 decades over the NOAA computed normal (1961-90) value (Table 1b). Since pheasant reproduce best during dry – warm springs this trend toward wetter conditions is likely reducing the reproductive potential of the population. Good counts in all 3 regions in the 1980's reflect the drier weather pattern experienced during that decade and lower counts with wetter weather prevail in the 1990's thru 2011 (Table 3).

Table 1b. Mean nesting season (Apr/May) rainfall (inches) by decade in southern Iowa roadside survey regions. Over the last half century pheasant counts have always declined with April/May rainfall greater than 8". Since 1992 April/May rainfall has been mostly over 8" every year across southern Iowa.

	SW	SC	SE
Normal (1960-90)	*7.46*	*7.63*	*7.53*
1940-49	7.18	7.18	7.66
1950-59	7.05	7.21	7.03
1960-69	7.34	7.73	7.54
1970-79	7.69	8.15	8.40
1980-89	7.40	7.00	6.82
1990-99	9.09	9.61	9.14
2000-09	9.15	8.57	8.39

BOBWHITE QUAIL

Statewide bobwhite quail numbers increased 63% over 2011 counts (Table 2, Figure 6). An increase was expected given the mild winter and good overwinter survival (Table 1). This year's index is above the 2010 count and identical to the 2002 count (Table 3). This year's count is just below the 10-yr average of 0.6 birds per route (Table 3, Figure 5). Changing land-use, mainly intensified agriculture, loss of small grain agriculture, and maturing forests are the leading factors in Iowa's long-term quail decline. Unfortunately, this trend is likely to continue in the future, unless programs like CRP can be modified to provide for the habitat needs of quail. Better quail numbers were found across the SC region of Iowa (Figure 7).

GRAY PARTRIDGE

The 2012 gray partridge count was 1.5 birds per 30 miles, an increase of 21% over the 2011 count, but the change was not significant – indicating variability across routes statewide. (Table 2, Figure 5). This year's statewide estimate is -15% below the 10-year mean and -63% below the long-mean (Table 3, Figure 5). Gray partridge prefer the wide open agricultural lands of the northern two-thirds of the state. The NW, C, and NC regions reported the best partridge numbers in 2012 (Figure 7). Typically partridge recruitment is highest in Iowa when spring/summer precipitation is well below normal. Years with below average rainfall, like 2012, generally are more conducive to good partridge reproduction.

COTTONTAIL RABBIT

Staff only reported an average of 2 rabbits per route in 2012, essentially unchanged from the 2011 estimate (Table 2). This year's count is 60-65% below the 10-year and long-term averages respectively and represents a new all time low for Iowa (Table 3). Regionally rabbit numbers increased in the NW and SE regions, but the only statistically significant changes were declines in the WC and C regions (Table 2). Rabbit counts were highly variable across the state except for the WC and C regions where consistent declines were reported. Part of this variability likely is related to the poor weather conditions during the survey. As a general rule cottontails reproduce well in years with abundant spring/summer rains, so this year's drought likely reduced litter survival, especially 3rd and 4th litters or caused females to abort reproduction. The best cottontail numbers came from SC and SE Iowa along the Missouri border (Figure 7).

Table 2. Mean numbers of wildlife observed per 30-mile route on the August roadside survey in 2011 and 2012. Only routes run under heavy to moderate dew conditions are used for statistical comparisons.

		RINGNECKED PHEASANTS								BOBWHITE QUAIL		GRAY PARTRIDGE		RABBITS	
REGION	n	TOTAL PHEASANT	COCKS	HENS W/O BROODS	HENS W/ BROODS	HENS	CHICKS	CHICKS/ BROODS	AGE RATIO	TOTAL BIRDS	COVEYS	TOTAL BIRDS	COVEYS	EASTERN COTTONTAIL	WHITETAILED JACKRABBIT
Northwest	22														
2012		16.23	1.82	0.95	**2.23**	3.82	**11.23**	4.91	3.68			2.50	0.18	1.91	0.00
2011		10.27	1.95	0.68	**0.91**	2.27	**6.73**	4.08	3.34			2.68	0.32	1.05	0.14
% CHG		58%	-7%	40%	**145%**	68%	**67%**	20%	10%			-7%	-44%	82%	
Northcentral	27														
2012		10.93	0.74	0.41	1.33	2.11	8.44	5.18	4.04			3.56	0.33	0.96	0.04
2011		8.08	1.13	0.33	1.00	1.75	5.63	4.23	3.42			4.71	0.46	1.08	0.00
% CHG		35%	-35%	24%	33%	21%	50%	22%	18%			-24%	-28%	-11%	
Northeast	16														
2012		1.44	0.19	0.00	0.19	0.31	1.06	3.40	3.40			1.50	0.19	1.88	
2011		1.07	0.21	0.00	0.00	0.29	0.86	3.50	3.50			0.57	0.07	2.86	
% CHG		35%	-10%			7%	23%	-3%	-3%			163%	171%	-34%	
West Central	18														
2012		3.50	0.39	0.11	0.39	0.78	2.61	**3.45**	2.65			0.83	0.06	**1.44**	
2011		6.11	0.78	0.33	0.50	1.28	4.50	**4.40**	3.30			0.17	0.00	**2.50**	
% CHG		-43%	-50%	-67%	-22%	-39%	-42%	**-22%**	-20%			388%		**-42%**	
Central	27														
2012		13.00	0.78	0.19	1.56	2.41	10.48	4.67	4.31	0.07		**3.30**	**0.33**	**1.70**	0.00
2011		11.59	0.78	0.48	1.44	2.56	8.89	3.97	3.37	0.00		**0.93**	**0.11**	**2.74**	0.04
% CHG		12%	0%	-60%	8%	-6%	18%	18%	28%			**255%**	**200%**	**-38%**	
Eastcentral	22														
2012		6.27	**0.09**	0.00	0.41	1.00	5.77	5.98	5.98	0.00		0.05	0.00	2.00	
2011		6.14	**0.50**	0.09	0.45	1.18	5.09	4.21	3.34	0.36		0.64	0.05	1.91	
% CHG		2%	**-82%**	-100%	-9%	-15%	13%	42%	79%					5%	
Southwest	16														
2012		4.38	0.38	0.13	0.63	0.94	3.25	3.67	3.15	1.75	0.13	0.06		1.88	
2011		6.21	0.71	0.21	0.57	1.29	4.71	5.20	4.54	0.07	0.00	0.00		2.00	
% CHG		-29%	-46%	-38%	11%	-27%	-31%	-29%	-31%					-6%	
Southcentral	25														
2012		4.00	0.36	0.12	0.36	0.80	3.16	5.04	3.71	1.68	0.16			3.04	
2011		2.88	0.40	0.12	0.32	0.56	2.04	4.69	3.52	1.28	0.04			4.28	
% CHG		39%	-10%	0%	13%	43%	55%	7%	5%	31%				-29%	
Southeast	21														
2012		6.19	0.71	0.24	0.57	1.10	4.67	5.71	4.01	0.14	0.05			2.95	
2011		5.53	0.89	0.21	0.74	1.11	3.68	4.39	3.58	0.21	0.00			1.47	
% CHG		12%	-20%	14%	-23%	-1%	27%	30%	12%	-33%				101%	
Statewide	194														
2012		7.87	0.63	0.25	0.91	1.57	6.07	4.84	3.96	0.39	**0.04**	1.45	0.13	1.97	0.01
2011		6.79	0.84	0.29	0.71	1.44	4.95	4.28	3.51	0.24	**0.01**	1.20	0.12	2.23	0.02
% CHG		16%	-25%	-14%	28%	9%	23%	13%	13%	63%	**300%**	21%	8%	-12%	-50%

BOLD numbers indicate a mathematically significant change from the previous year ($P < 0.10$, Wilcoxen Signed Rank Test).

Table 3. Historical upland wildlife numbers from the August Roadside Survey. Numbers represent the average number of animals counted on 30-mile routes[a].

	PHEASANTS										BOBWHITE	GRAY	EASTERN	WHITETAILED
YEAR[b]	NORTH WEST	NORTH CENTRAL	NORTH EAST	WEST CENTRAL	CENTRAL	EAST CENTRAL	SOUTH WEST	SOUTH CENTRAL	SOUTH EAST	STATE WIDE	QUAIL STATEWIDE	PARTRIDGE STATEWIDE	COTTONTAIL STATEWIDE	JACKRABBIT STATEWIDE
1962	84.7	95.5	85.3	85.0	74.6	32.3	44.4		12.8	65.9	0.62	1.13	5.2	0.45
1972	37.9	44.6	61.0	61.4	73.2	88.6	112.3	54.3	25.8	59.6	2.26	1.92	5.5	0.30
1973	47.0	56.9	65.4	66.3	88.7	103.5	72.4	54.3	30.2	65.8	2.54	1.87	5.8	0.20
1974	46.6	53.2	52.5	60.5	40.0	55.9	90.1	49.6	16.8	49.7	2.11	1.82	4.1	0.07
1975	10.5	28.7	52.3	34.3	43.2	64.3	51.0	45.4	27.4	38.8	1.98	1.98	3.2	0.11
1976	14.8	42.2	68.1	44.8	54.9	75.4	61.7	49.2	28.7	48.2	2.19	2.14	6.4	0.11
1977	26.9	44.2	86.7	56.9	50.8	78.5	75.1	44.3	24.4	51.7	2.69	4.70	4.3	0.08
1978	36.3	26.1	68.8	67.8	50.5	63.2	76.7	45.5	30.5	49.7	1.87	3.73	6.2	0.14
1979	40.1	29.6	44.8	49.4	39.2	39.6	80.9	51.5	21.8	42.4	0.66	5.59	3.6	0.16
1980	51.2	61.7	81.2	98.7	72.2	63.5	82.1	68.9	37.2	67.0	2.05	8.81	4.2	0.15
1981	66.4	53.5	83.6	92.9	57.8	72.9	97.1	57.8	35.2	65.9	2.60	8.08	7.8	0.31
1982	26.7	27.9	38.9	55.5	23.1	20.9	41.6	47.7	19.3	32.3	0.79	4.21	6.4	0.10
1983	9.6	12.8	21.7	21.6	13.3	25.3	42.6	51.1	27.5	23.7	1.44	2.65	6.8	0.05
1984	8.8	11.1	19.2	22.1	14.4	24.5	23.8	38.5	26.4	20.6	0.66	4.22	5.6	0.08
1985	21.6	28.0	36.4	40.0	32.7	26.0	59.2	72.6	42.0	38.9	1.37	9.75	7.4	0.07
1986	27.5	20.4	48.2	31.2	24.8	29.0	49.7	65.2	27.2	34.8	1.42	9.62	7.7	0.12
1987	40.2	36.8	59.7	61.4	41.1	33.2	58.5	64.2	39.0	46.8	2.70	14.93	8.6	0.12
1988	33.6	35.0	45.1	60.8	29.6	26.0	45.7	49.8	29.8	38.1	1.96	19.00	4.5	0.17
1989	25.3	36.5	52.1	69.9	57.1	35.3	38.6	40.0	39.0	43.2	1.91	17.27	5.4	0.22
1990	34.3	49.4	63.9	57.9	44.3	24.7	44.5	31.7	27.3	41.2	1.48	8.75	9.2	0.19
1991	37.3	45.3	48.8	77.6	41.6	33.3	61.2	49.4	41.6	46.8	1.34	4.59	5.5	0.07
1992	24.4	50.5	30.5	44.0	42.1	37.8	29.4	23.6	34.2	35.8	1.07	3.58	6.0	0.14
1993	15.8	21.4	15.2	55.2	23.8	25.0	34.3	24.0	28.1	25.9	0.96	0.85	5.5	0.03
1994	45.0	74.1	33.3	83.3	55.6	67.8	47.3	46.0	56.7	56.9	1.58	6.17	6.3	0.15
1995	26.0	63.2	37.6	44.7	54.3	54.3	43.7	27.8	43.2	44.6	1.37	2.47	7.0	0.06
1996	54.7	61.8	29.5	45.2	49.8	59.4	29.8	19.5	28.2	43.4	0.51	2.37	6.2	0.09
1997	46.1	62.0	41.2	37.3	54.7	47.4	31.7	28.8	41.3	44.8	0.77	5.10	4.9	0.10
1998	74.2	56.7	43.1	33.9	49.6	53.9	18.1	15.7	41.7	44.6	0.72	6.42	5.1	0.09
1999	42.7	33.6	21.6	19.5	37.9	36.0	17.5	12.9	27.0	29.1	0.57	2.83	5.9	0.06
2000	60.6	33.3	14.9	29.0	50.3	37.0	25.5	19.3	22.0	34.3	0.57	2.53	6.4	0.03
2001	22.4	16.0	6.2	8.4	22.0	19.0	12.0	7.3	4.6	13.9	0.29	1.90	3.8	0.05
2002	47.0	42.9	13.6	32.0	49.9	32.0	15.7	11.7	22.6	31.7	0.39	2.82	5.3	0.03
2003	81.2	67.3	20.7	36.1	61.2	35.6	29.3	21.8	28.2	44.9	0.89	2.76	8.8	0.03
2004	54.4	34.4	19.0	21.5	35.6	24.4	24.9	19.6	24.4	29.7	0.93	2.12	8.1	0.03
2005	63.5	42.3	25.3	32.0	49.9	25.9	28.9	12.6	23.5	35.1	0.69	2.79	6.2	0.02
2006	48.3	36.1	18.4	23.7	36.8	20.4	20.3	9.0	20.0	27.0	0.82	2.01	6.4	0.05
2007	41.3	35.0	20.1	26.0	36.2	25.0	12.8	5.6	19.8	25.8	0.81	1.62	4.3	0.02
2008	49.4	25.4	9.1	21.2	18.6	7.4	5.7	4.4	5.3	17.5	0.45	1.03	6.3	0.00
2009	35.5	16.6	2.6	23.5	19.1	9.3	10.0	4.8	10.1	15.4	0.72	1.17	5.0	0.01
2010	29.6	16.2	4.7	8.8	11.7	5.3	6.1	1.8	6.6	10.8	0.33	0.93	3.1	0.00
2011	11.1	7.3	2.4	5.5	10.2	5.9	6.3	2.9	4.7	6.6	0.22	1.15	2.2	0.02
2012	16.2	10.9	1.4	3.5	13.0	6.3	4.4	4.0	6.2	7.9	0.39	1.45	2.0	0.01
Statistics:														
10 Year Avg.	43.0	29.2	12.4	20.2	29.2	16.5	14.9	8.6	14.9	22.1	0.62	1.70	5.2	0.02
Long-term Avg	39.4	46.7	40.5	46.7	44.8	43.8	55.7	34.7	26.3	41.4	1.39	3.91	5.9	0.15
Percent Change from:														
10 Year Avg.	-62.3%	-62.5%	-88.4%	-82.6%	-55.6%	-62.1%	-70.5%	-53.7%	-58.4%	-64.4%	-37.5%	-14.9%	-62.3%	-47.4%
Long-term Avg	-58.8%	-76.6%	-96.4%	-92.5%	-71.0%	-85.7%	-92.1%	-88.5%	-76.5%	-81.0%	-72.0%	-62.9%	-66.9%	-93.3%

a Values do not match those in Table 1because historical data is based on ALL routes completed, whereas values in Table 1are calculated only between directly comparable routes.

b All data is used to compute long-term averages, but several years of historical data are not show in table because of limited space.

Statewide Pheasant Trends

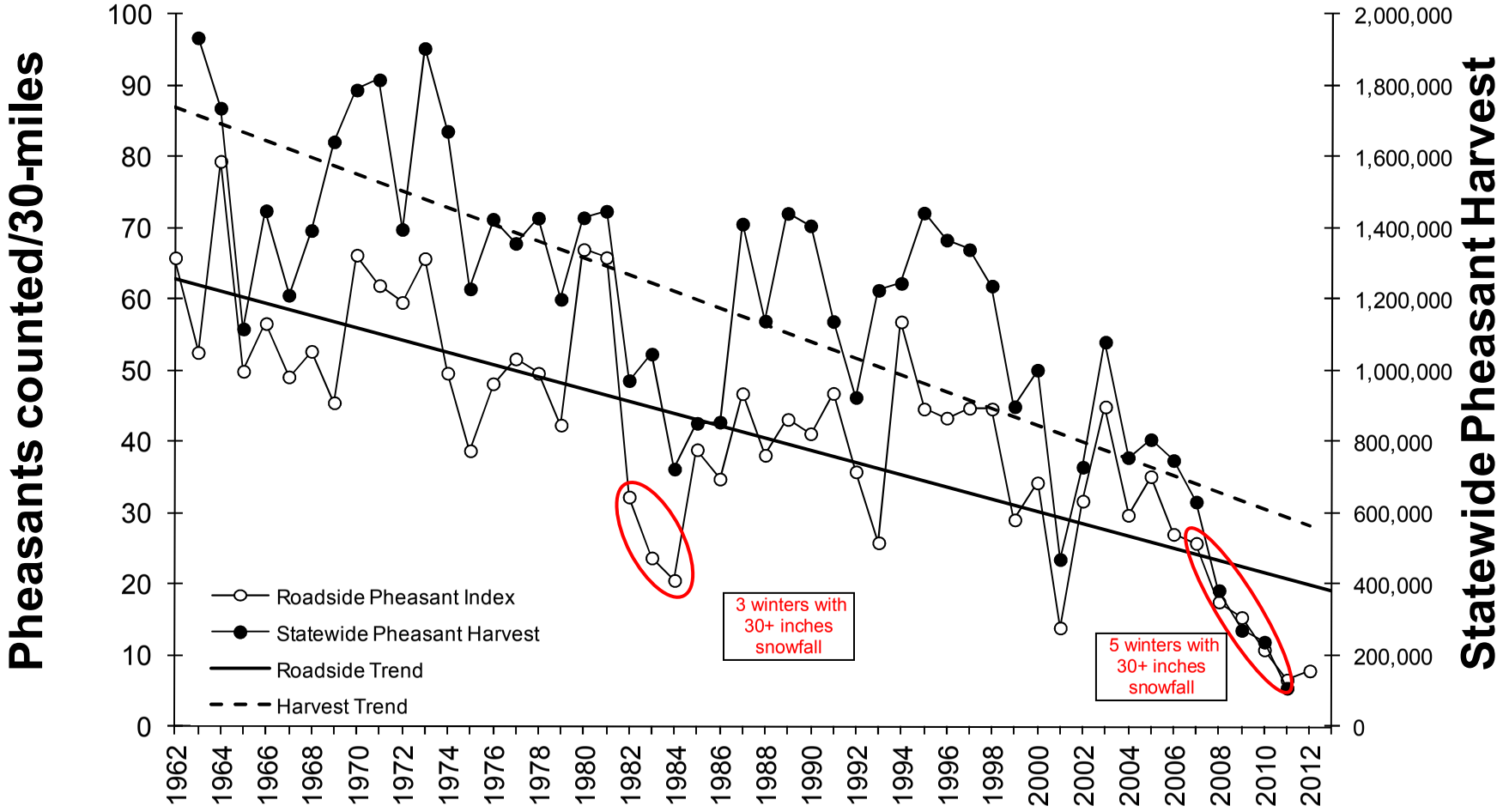


Figure 4. Mean number of pheasants counted on 30-mile August roadside survey routes, statewide, 1962-present compared to total statewide pheasant harvest.

Statewide Upland Game Trends

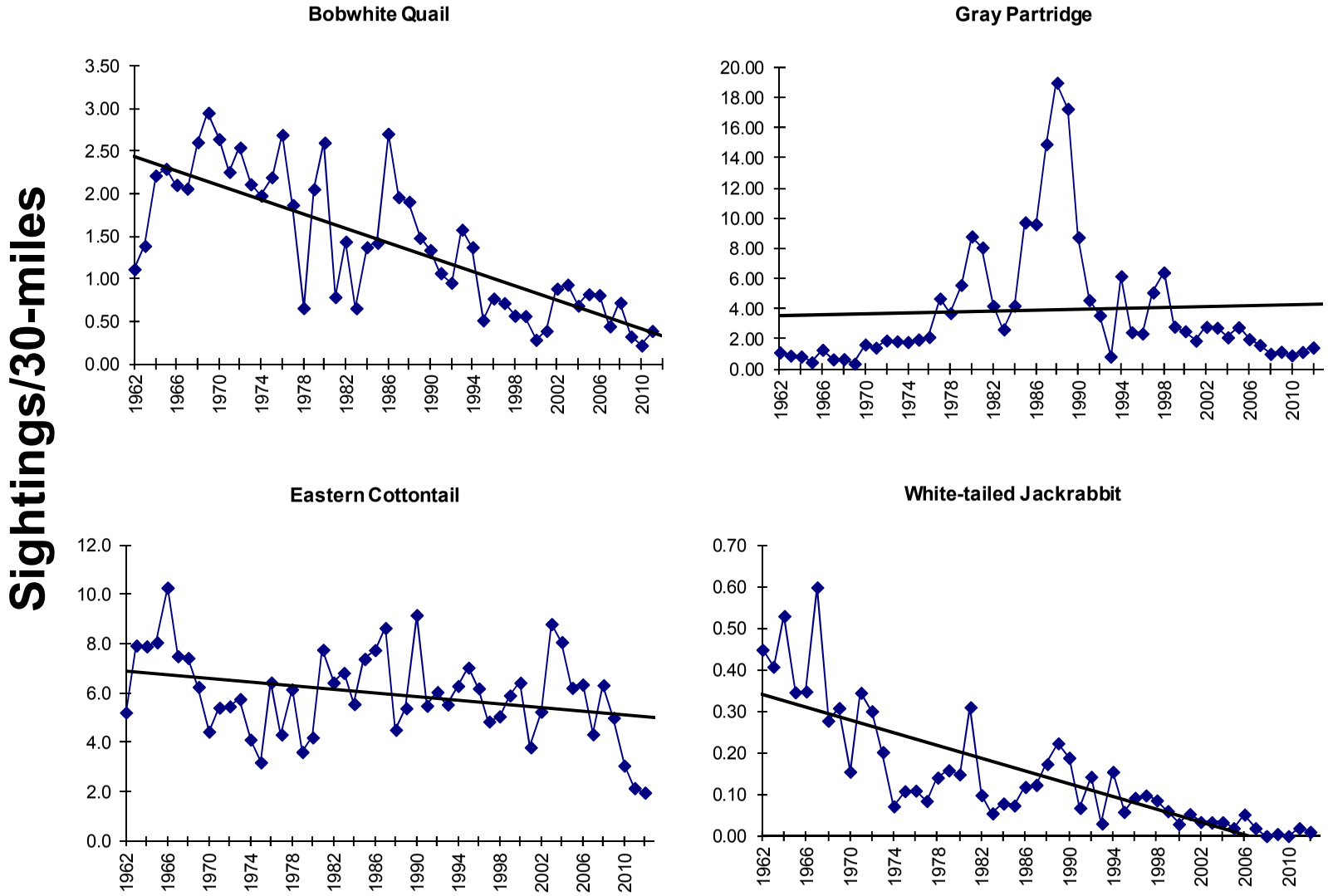


Figure 5. Mean number of quail, partridge, cottontails, and jackrabbits sighted per 30 mile route on the August roadside survey, statewide, 1962 to the present.

2012 August Roadside Survey

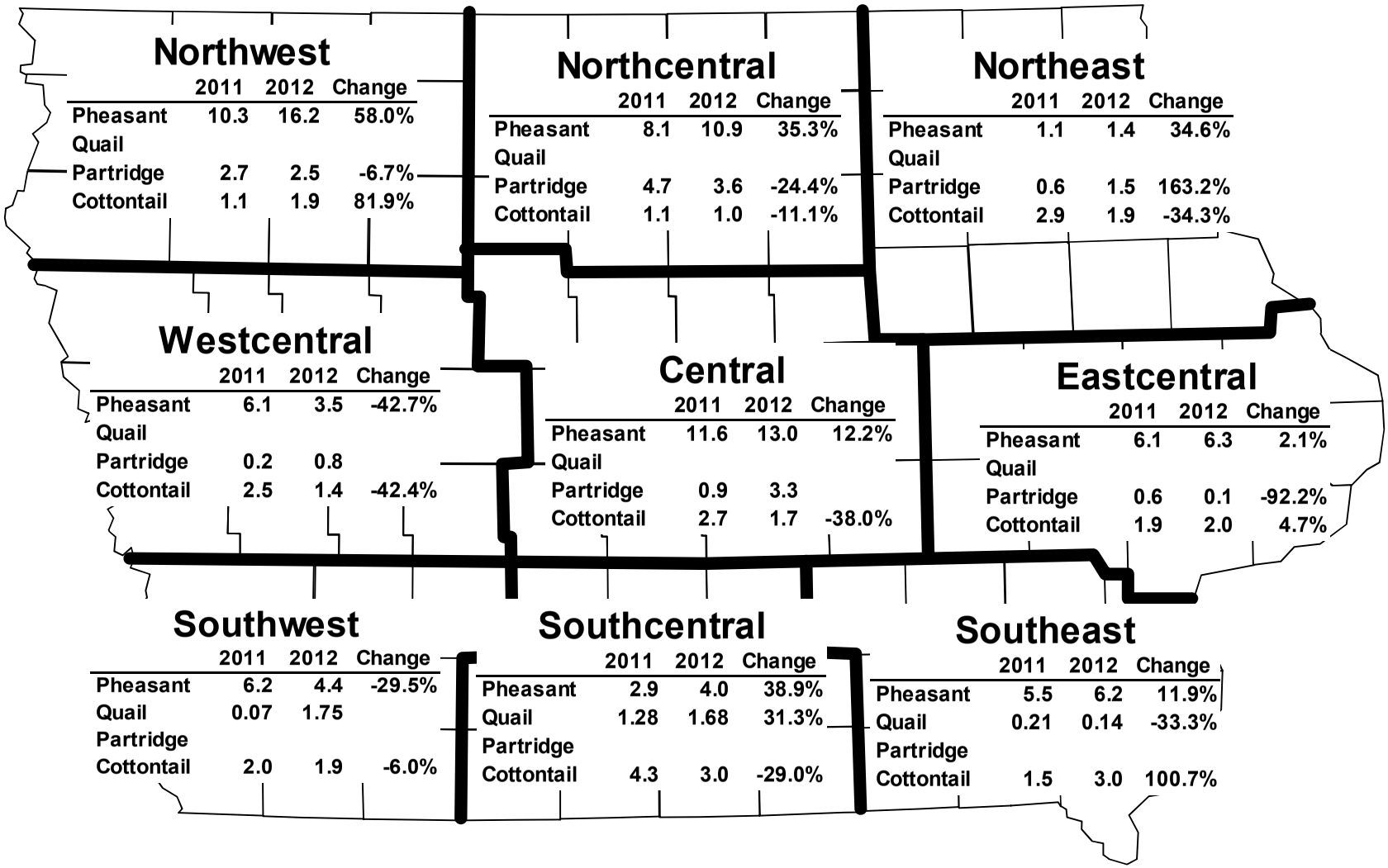
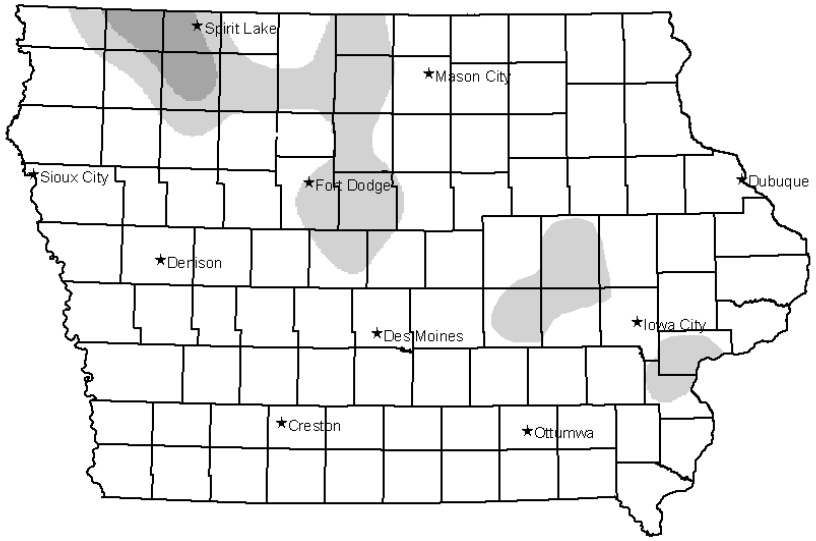


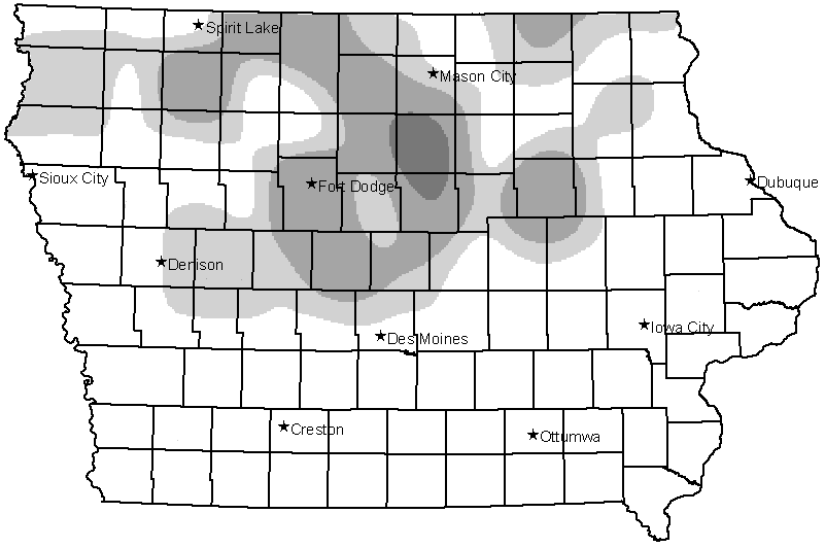
Figure 6. Numbers indicate the average number of animals counted on 30 mile routes in each region (e.g., the northwest region counted an average of 16.2 pheasants on 30-mile survey routes in 2012). Data from 194 of 215 total routes.

2012 GAME DISTRIBUTION

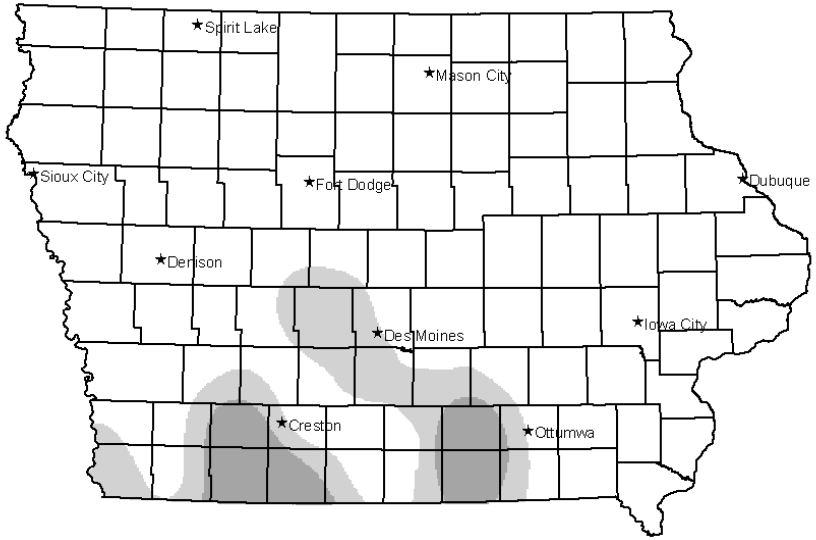
PHEASANT



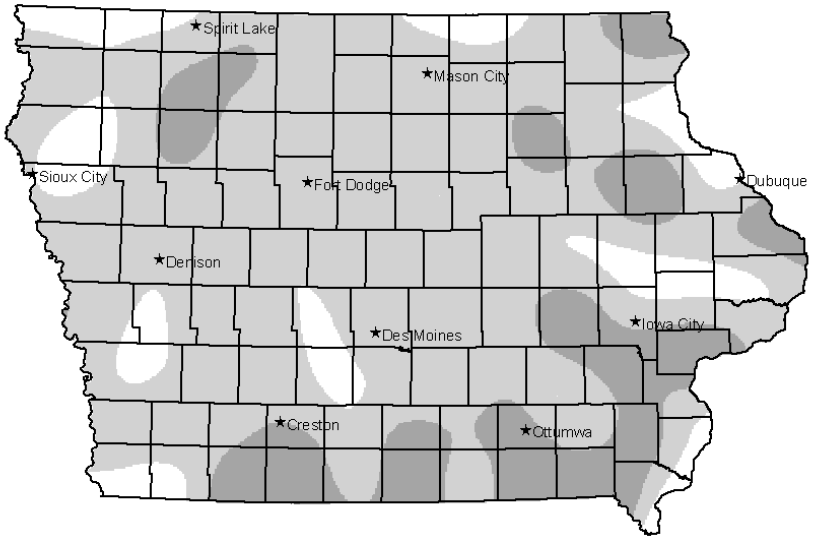
GRAY PARTRIDGE



QUAIL



COTTONTAIL



EXCELLENT **GOOD** **FAIR** **POOR**

Figure 7. Iowa small game distribution maps represent generalized game abundance. There can be areas of low game abundance in regions with "high" counts and vice versa.